

BEDTIME STORIES
FROM A
GLASSBLOWER
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"How come you're a glassblower?" That's a question I've been asked possibly once a week for the last 15 years. So, how come I'm a glassblower. Probably a major fact is that blowing glass is a family tradition.

I can remember when very young being told stories about my grandfather. How he began blowing glass. His inventions to do with glass and how much he loved the challenge that glass presented. Because he died when I was very young, I never knew him.

Judging by these stories, told by my grandmother and her children - Albert, my father, Dorothy and John - he must have been quite an extraordinary person in his day.

It's even more remarkable when I realise that the fascination with glass has influenced nearly all members of the families that have followed. We've all tried, one time or another, to blow glass. Some family members have even married glassblowers.

It's said that a lucky man is one whose work is his hobby. Maybe that's true. I know my fascination with glass is all-encompassing. All areas have their attraction, but none more so than working the glass when it's molten, a liquid mass at 1200C. The ideas flow and creativity blossoms. I can shape this glowing liquid into anything I choose.

It is a moment of decision-making and, later on, reflection. Maybe I could have made the work different. Next time. So it goes on, the searching, the challenge, frustrations and the excitement, the enjoyment of working with glass.

Glassblower/Minson contd.

My grandfather, John James Minson, was born on 7th July, 1887 in London, England. Little is known of his childhood except that he probably grew up with his brother Dick and his sister, name unknown, in the northern suburbs of London, in Hammersmith.

In 1902, aged 15, John James, or Jim as he preferred to be called, left school and started work at a factory in Brook Green, Hammersmith, where electric lamp, or light bulbs as they are known today, were being made.

This business was called the Robertson Lamp Factory, and eventually became the Osram Lamp Works owned by General Electric Company. My grandfather worked there for 20 years, with the exception of 2 years - 1914-16 - when he worked in Derby and Leeds.

During this 20 years, he received steady promotion to the position of Section Superintendent. Jim was an enthusiastic member of the Lamp Works amateur dramatic society. It was here he probably met Dorothy Dallender, one of six children - 3 boys and 3 girls - who lived in Chiswick, a nearby suburb. Dorothy was also a worker in the Lamp Works. They were subsequently to marry.

This period 1902-1922 was the foundation of the Minson family's preoccupation with glass work which continues today. Both Jim and Dorothy were active, before, during and after the 1914-18 war, making all sorts of electric light bulbs and also the glass inner for Thermos flasks which were a product of that time.

A product developed by Jim was a Thermos flask with a glass tap and a rubber drinking tube for use by pilots of the Royal Flying Corps while flying in their unheated open cockpit planes. One of the early Thermos flasks was taken home by Dorothy to be tested to see how long the liquid would stay hot

Glassblower/Minson contd.

sealed inside. The next morning it was still too hot to drink. Dorothy decided to keep this one, and it remains still in use with a family member today.

In 1922, John James Minson's employment with Osram was abruptly terminated. It was brought about by a disagreement over patent rights for a radical new wide-mouthed vacuum flask which he had developed. Evidently, Jim had been developing it with financial help from a partner. When confronted with a demand from Osram for all the patent rights and samples, he refused to hand them over, and resigned.

A daughter Dorothy had been born that September and the family could have found itself on hard times. But Jim immediately got a job with a business in Willesden that intended to commence lamp manufacturing in Britain.

At the time, it was importing lamps from Europe, and a legal battle had commenced to stop this importation of foreign lamps. Finally, the case was lost, and a judgment issued prohibiting the continued importing and distribution of lamps.

At the same time, orders were given to impound the entire stock. But the company anticipated the order and hired a fleet of trucks, and, working all night, emptied the warehouse and shipped the stock back to Europe. The next day, when the court officials arrived, all they found was an empty building and not a lamp to be found anywhere.

In the face of such stiff competition from an already entrenched industry, the company abandoned its plans for local manufacture, and Jim was out of work again.

What followed now was a bleak and difficult period for his family, and, indeed, for the whole country, which was still in turmoil following the end of the war.

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Glassblower/Minson contd.

Work was virtually non-existent. But this year, 1922-23, saw the entry of the Teddy Bear to the toy market, named after Teddy Roosevelt.

Jim and Dorothy started working at home, stuffing and finishing the bears for sale. For a time, the house was littered with bear skins, cardboard cut-outs for the feet, eye buttons, and bags of sawdust.

It was about this time the wireless, or radio as it is called today, was finding a growing acceptance in the home. This opened up a new avenue of activity. After an early period of crystal sets, cats whiskers and ear phones, wireless sets, using wireless valves, appeared on the market.

The first valves were much the same as a light bulb, having a bright tungsten filament plus an anode plate and spiral grid. Their performance left much to be desired. They were extremely erratic and unpredictable, and avid wireless fans who had managed, probably by chance, to acquire a valve which performed well and was reliable were heart-broken when, inevitably, the filament burnt out.

Jim saw an opportunity and seized it with both hands. Twenty years of lamp manufacture had given him the perfect grounding for repairing valued wireless valves. Little equipment was needed. A glassblower burner, a vacuum pump, and Jim was started in a brand new occupation.

In a rented room in Acton, about a mile from home, Jim set up his workshop. Although electricity had been invented, few places had it available, and this place was no exception. Most lighting in homes and streets was by gas, as was this place.

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Jim acquired a single cylinder horizontal gas engine with a large flywheel and, after removing the room fireplace, set the engine on the hearth with the exhaust going up the chimney. He connected the town gas supply to the engine and was in business, the engine producing several horsepower to drive things along.

The engine drove via a flat leather belt, and he hung an overhead shaft from the ceiling, running the entire length of the room. This, in turn, drove, via descending belts, the air compressor and a large generator which charged the batteries for operating and testing the repaired valves.

The retail sales-outlet centred around the local Acton Police Force, "the bobby on the beat", one of whose members was Reg Dampney, the husband of Dorothy's sister Mona. Reg had joined the police force at the end of the war, and his solicitation of local police, their friends and relatives, soon produced a flood of work in the form of burnt-out wireless valves for repair. And all were carefully labelled with the owner's name and address

Jim repaired the valves as follows: He cut open the small evacuating tip on top of the valve, thus allowing the air into the valves. Then holes were blown into each side of the valve. He then removed the burnt-out filament with special tweezers and fitted a new one. He sealed the holes, evacuated the valve and sealed it before testing.

The modest price for the job was two shillings and sixpence, about 25 cents in today's money. The resultant performance was still a little unpredictable, but often much improved, and the customers, who received their repaired valves via the delivery man, "the local bobby", were happy with the service and performance.

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The business flourished and soon needed more space. So Jim and Dorothy moved to a two-storey place in Mill Hill Road, still in Acton. The same gas engine was moved and installed, and the business kept growing. Eventually, Jim started manufacturing his own range of wireless valves under the brand name "Lumos", complete with a newly-discovered "Dull Emitter" filament.

Another lucrative service was the charging of batteries, sized from 2 6 volts, that were used for lighting the valve filaments, and large numbers were always in the factory for recharging.

Business was progressing well, although supplies of materials, glass bulbs, nickel gauze and filament wires were being hampered by the actions of the large multinationals - GE, Osram, Philips and Siemens - who did not welcome any competition, however small.

Disaster struck eventually from a totally different source. On the Saturday afternoon of the Oxford and Cambridge Boat Race of 1926, when most Londoners were lining the banks of the Thames from Putney to Mortlake, thieves broke into Jim's premises.

They backed a large truck up to the dock door fronting Mill Hill Road and proceeded to remove the entire stock of wireless valves and numerous accumulators being charged for clients.

Neighbours who observed the operation were not suspicious of anything unusual happening and took no action. Nothing was ever recovered, and since insurance cover, if any, was insufficient to cover the loss, the family was in dire straits.

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During the ensuing few weeks of indecision about the future, Jim happened on an advertisement in a London paper inserted by Amalgamated Wireless of Australasia (AWA) seeking the services of someone to manage their wireless valves manufacturing plant in Sydney, Australia.

This plant had been in operation for some years but was not making a satisfactory product because of the lack of knowledge of the techniques involved. Jim applied for the position and was accepted immediately.

His wife was none too sure whether she would go to Australia, and, during the following six weeks, resisted any change. Every morning Jim would put a sign in the window of their house, "Furniture for Sale", and the moment he was out of sight Dorothy would take it down.

Finally, with two weeks to go and realising Jim was definitely going to Australia, she gave in, and, after selling their furniture and most of their possessions, they all sailed for Australia on the Jervis Bay on the 13th July 1926.

The six week trip was relatively uneventful, with time spent learning to play mahjong and crib. The ship stopped twice, once at Port Said overnight and next in Colombo for a further one and a half days. Then it was Fremantle, Adelaide, Melbourne and Sydney, letting people disembark at each stop.

During the trip, radio contact was maintained with shore bases and a daily newspaper produced, keeping everyone informed of events back home. About half-way, the wireless broke down and spare valves proved unworkable.

Jim, who had spent many hours in the wireless room, volunteered his own brand of valves. These were fetched from the luggage section and fitted to the set. They worked perfectly, and radio contact restored.

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The ship's captain was impressed, and, on disembarking in Sydney, presented Jim with a letter to the effect that, not only did his valves work, but appeared to work better than those previously used. It's interesting to note that this was the first time radio contact had been maintained for a complete trip from England to Australia.

The family stayed on the Jervis Bay for 2 days while Jim looked for a place to live. Accommodation in Sydney at the time was very scarce and, after rejecting a boarded up verandah in a building in the suburb of Forest Lodge, he finally settled for one room in the basement of a terrace in Lower Fort Street, under the partially constructed South Pylon of the future Sydney Harbour Bridge. The back door of this one room opened out to a tiny yard with a wooden fence that looked over Pier One in Darling Harbour.

With the family settled in this one room, Jim reported for work at AWA, situated in Knox Street, Sydney. He immediately started familiarising himself with their plant for making wireless valves and transformers.

Of course, being typically English, he arrived first day dressed in his dark suit, bowler hat and cane, and spent the day walking around observing and being the supervisor. This appearance and attitude brought much amusement from the staff, so much so, that, on arriving home after work, he threw his cane and hat away, vowing never to wear such things again.

At the end of 6 weeks, Jim had moved the family to 42, Alt Street in Waverley. These were all single houses, except for the middle one which consisted of 12 single-storey terraces, one of which was ours. All were owned by one woman and they were all in a decrepit state. Probably the only thing in their favour was that each had a small back-yard.

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My father Albert had started school in Waverley by this time. Prior to leaving for Australia, he had won a scholarship to attend a private school in London. Out here though, Jim and Dorothy found little acceptance of Albert's English exam results, and he was made to sit for final exams again before getting entrance to one of Sydney's only two High Schools, Sydney High and Fort Street High.

Luckily, one of the teaches saw the unfairness of such an exam, with most of the questions in many sections centred on Australian History and geography and, certainly, local knowledge. This teacher stood close by and helped Albert answer these questions.

In Easter 1927, a new Sydney High opened in Cleveland Street, opposite Moore Park, and Albert moved from Waverley to there. At that stage, most children only went to the equivalent of 2nd year or 8th grade today. To have the opportunity to continue to 5th or 11th grade was a big achievement.

It was during the 1926 Christmas break-up party at AWA that Jim experienced his first Aussie Christmas tradition. Back home in England, places of work seldom closed for more than a few days. In Australia, most places closed for 2 weeks over Christmas, and that last work day before shutting down, everyone had a party.

Jim, for the first time in his life, arrived home rolling drunk with a wooden cigarette box, a present from the staff, tucked under his arm. Dorothy refused to talk to him for days, being ashamed at his behaviour. However she finally relented and forgave him.

Jim was under a three-year contract with AWA. They were having lots of problems getting the valve machines working. Most of the equipment was old and out of date. The valve industry was growing rapidly, with new discoveries occurring quickly.

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Large problems developed over gassing of the grid and filaments in the valves, and much of Jim's time was spent working out ways to improve doing this. He also helped develop a way of putting in a third filament.

He had noticed that the failure rate of the valves was due mainly to annealing problems, with about an 80% loss in production. He spent a lot of time altering machinery to improve this and eventually breakages were very small.

Because of the rapid changes in the industry, and under pressure from the new technology from America, AWA, on Jim's advice, closed down their plant at the end of 1927. He had been there for a bit under 2 years and had just helped install the first Bakelite press and the first spray unit in their factory. The main interest now was to negotiate patent rights for these new valves from America.

For most of 1928, he still worked on new valves with AWA. But, with the prospect of them getting back into production a long way off, Jim started looking around for something new to do.

Neon signs were about to hit Sydney, and a company called Scanlen, no connection with the modern Scanlan, advertised for someone with knowledge of electrics to help set up their recently-purchased American plant.

Scanlen at the time were electrical contractors, mainly installing wiring in houses and factories. The Rainbow Corporation of America had sent out a Mr. Wade, nicknamed "Bozo", to set up and operate their plant and teach local people how to make neon signs.

Jim applied and got the job, asked AWA to release him from his contract, and started with Scanlen's the next day.

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The first sign made was a "Shell" sign installed before the approaches to the Sydney Harbour Bridge, in North Sydney. It was officially switched on by the then Mayor of North Sydney.

It was a big day for Sydney. And, because the Depression was still to reach Australia, the neon sign business flourished.

Next, the State Theatre building had its tower outlined in neon and the new foyer also. Because of the inexperience of the neon workers, many of the tubes leaked and either glowed purple or refused to light at all.

Albert was called in to help fix tubes, and, the night before switch-on, everyone worked right through to make more tubes that would work. Albert climbed the tower to help install them and, finally, by the official time, all were working properly.

Maurice Lang by this time had started work with Scanlen. His father had owned and operated one of the first bottle factories in Adelaide. At this time "Knock-Out Smith", a rather infamous character who ran the Australian Glass Manufacturing plant, had managed, through various means, to close all the opposition bottle plants in Australia. Maurice Lang's family plant had succumbed and ceased operation.

About this time, Philips in Holland had become interested in neon, and were interested in exporting single-letter neon signs into Australia. These were mounted on a small steel plate.

The Regent Theatre in Sydney started using them to advertise their shows along the front of their theatre. Problems arose when they inevitably ran out of the most-used letters, causing problems with spelling.

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By now, the Minson family was on the move again, from Alt Street to Bourke Street in Waverley. This move to Bourke Street was short-lived, and the family moved once more, to 31 Manning Street.

Early in 1932, Jim left Scanlen's and started with Philips, who had opened a neon sign plant in Sydney in 1931. This job was not to last long, as the Depression was about to hit and Philips closed down. Most of the neon signs on buildings were leased, and, with businesses closing down and leases not paid, the neon business folded.

Out of work again, Jim decided once and for all it was time to start his own business again.

In his rented house were gas-light fittings. These had been sealed off when electricity had been connected. Interestingly enough, the gas tap most accessible was the one in Albert's bedroom. His bed was moved to one side, and, on the other side beneath the wall gas-tap, a glass-working bench was set up, complete with burner and foot bellows. A rubber hose ran down the wall to the burner, and the Minson's glass business was in operation again.

This was in July 1932. Shortly after, a model steam engine was converted to be driven by a small electric fan motor, and it became the compressor for air which was connected to a car tyre inner tube. This acted as an air reservoir for the burner.

The first work was with medical supplies, hand-making eye-droppers for Elliot brothers which would subsequently become Drug Houses of Australia (DHA). Park Davis also visited and gave its first orders for 5 dozen eye droppers at 6 shillings (60 cents) per 144.

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Glassblower/Minson contd.

By this time, Albert had left school and got a job with Chrysler Radio Company, to help supplement the family income. However, pay was very poor and he left after only one week. The family business looked like it had promise and would grow, so he started with his father, making eye droppers back in Manning Street.

Early in 1933, with business growing and the bedroom being too crowded for Jim, Dorothy and Albert, another move was in order. They moved to Number 15 across the road, still in Manning Street.

This house had a couple of good features, one being that, although the front was at street level, the ground sloped to the back, giving a large underground section at the rear. This area was the laundry, with a large copper for heating water for the clothes washing.

This lower area was converted to a work area for glassblowing, with machinery developed and used in making chemists' and medical supplies.

The family probably survived fairly well during the Depression and the later years, 1934-40. Next-door neighbours and family worked there, all totally illegal, of course. But, probably, Jim and Dorothy never really considered they were doing anything wrong.

Late 1932, Jim started his own neon sign company which operated until 1934. One of their first jobs was making a writing sign for Penfolds Wines. It was made in his spare time in that section under the house.

In 1934 Albert split from his father and went to work on his own. He first worked for the Eastern Trading Company. They had advertised for a neon expert to help start their new neon company.

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The owner, Mr. Milligan, had bought a package-deal to make neon from the USA. Albert set up their plant but the electrics were the wrong voltage, 100 instead of 240, and, besides, the burner would not work either.

Milligan blamed Albert, complaining he didn't know how to set up a neon plant. Albert disagreed and finally convinced ETC to get the gas company to check the burner. Sure enough, they were only good for high pressure natural gas. Finally the gas company agreed to make all new burners, and, with Maurice Lang joining ETC from Scanlan's, and Albert on the electrics, the business started.

One of the first jobs was outlining the Doncaster Theatre, Bondi Junction, in neon. Next was a butcher's building and various other local shops. A major job was the AWA tower on its Sydney block of offices. This still stands today. Business boomed, and they started a night shift working from 6.00 pm to 6.00 am

Towards the end of 1936, Albert decided he needed a change. AWA had by this time got back into valve manufacturing, having finally sorted out their patent rights by late 1933.

Albert approached them for a job and, happily enough, he was employed immediately. The management was still the same as had employed Jim back in 1926. They had built a new production plant at Dodge Park in Ashfield, where they still operate today.

Albert was given an automatic valve-sealing machine and told to watch its production and not touch. The losses on all these machines were large, possibly 80% It wasn't long before Albert, while unobserved by the floor supervisor, was gradually altering the fires to improve the tubes and reduce the loss rate.

Glassblower/Minson contd.

Unbeknown to Albert, each machine had a loss or reject chart kept on its production. Soon it became obvious that his machine was producing with a very small reject rate compared to all the others. Called before the management, he was asked to explain why this was so, and he had to admit to tampering with the burners.

The upshot of all this was he was promoted to floor supervisor after only a few weeks working there, with the instructions to get all the other machines working like this one.

Meanwhile, back in Manning Street, the business continued to grow, with orders for scientific and medical wares. Pipettes were added to the range after Jim had worked out how to inscribe and write on the glass.

First of all, he calibrated the glass using water, and marking where the water came with Indian ink. Then he covered the glass with paraffin wax and drew through the wax, inscribing lines and free-hand writing over his ink marks. These lines were then etched in hydrofluoric acid. They were very rough, but a start.

Jim then invented and built a small machine to calibrate the tubes automatically, using Meccano parts. Other work was tackled by getting a sample or drawing and just fathoming out how it was made.

Towards the end of 1937 and into 1938, Jim developed a hernia that required an operation. Albert took a month off from AWA to run the family business while the operation took place at South Sydney Hospital, mid-winter 1938.

Although the operation was a success, Jim caught a bad cold that developed into TB. All the experts insisted fresh air would be a cure, so he pitched a tent in the back yard and slept in that for quite some time.

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Glassblower/Minson contd.

Early 1940 found war declared, with Australia supporting England in their struggle. By this time, the family business was employing about 6 people, mainly women, and being run by Jim's wife, Dorothy.

They were still making eye droppers by hand and using a small spinning machine for the flanged ends. They also had developed a spinning machine for making nipple shields and hand tools to make breast relievers, all still operating under the house and all illegally.

With war declared, and increasingly worried about being found out, Dorothy moved the lot to a place in Spring Street, Bondi Junction.

There Dorothy ran the place on her own with her 6 girls and the machinery moved from Manning Street. Jim by now was quite badly affected by TB, and lived up in the Blue Mountains, at Springwood.

Albert had, for quite a few years, been courting the girl next door. They married in 1940, and moved to Maroubra. It was there I was born, at the end of 1941.

Sadly, six months later, in mid 1942, Jim passed away from the effects of TB.

Albert was still with AWA, or AWV, as the valve section was called during the war. The Australian Navy wireless system was based on the British system and all pre- 1930, obviously very out of date.

A crash programme was started to modernise all the wireless section. Pre-1930 machinery was pulled out at AWV, and they were told to convert it to handle new tubes, all much more

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complicated than previous ones used. Two scientists were employed, Ray Healy and Doug Sutherland, and Albert was told to work with them to make the new valves.

This development continued right through the war, more as a necessity than for any other reason. With Australia cut off from America and England, they had to do it all themselves. In a situation such as that ideas flourished, with work developing Radar tubes and magnetrons for high frequency work.

Not worried about the effects of high-frequency electromagnetic waves, they invariably heated up the water for pots of tea in a glass beaker sat in front of a "magnetron", the forerunner to the modern day microwave oven. Albert still has one of the first Radar tubes from those early days.

During this time, they successfully went over to make transmitting tubes at more than 400 per hour. Next came mercury vapour rectifying valves, and, eventually, hard glass transmitting tubes.

Then came the "Cat Nine" tube. A cathode-anode transmitter with nine metal pins was developed, with a 4" or 100mm OD copper tube, joined to a lead glass jacket complete with platinum thimble seals.

Newer valves continued to become miniaturised, and new technology developed with the new machinery to handle these small tubes. The compression-stress technique, developed to make these valves, worked well, mainly because the valves were small and heating was very quick.

These scientists from AWW and other companies eventually went on to form the basis of the CSIRO, the government research body that has done so well over the ensuing years.

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Glassblower/Minson contd.

At the end of the war, Albert left AWW and joined the family business again. Dorothy had held the business together during the years, but needed help.

With the threat of petrol and gas rationing about to start, Albert's inventive side was about to be challenged. During the war, he had weathered the petrol rationing as others had, but in a different way. He converted his little Singer car to electric. He took the engine out and replaced it with a flat floor in and installed batteries where the engine had been. He connected a 3-phase electric motor between the batteries to drive the car, and a "knife switch" to act as forward and reverse, connected to the motor. In this way, he was mobile during the war years.

At each end of the trip, he plugged the batteries into a charger overnight or while at work. It didn't travel very fast and going up long hills was a problem. Passengers had to get out and walk alongside, getting back in at the top. But it was transport.

After the war, Albert bought a Standard van to move the family around in. The family was by now made up of Albert, Joan and the four children, Margaret, myself, Brian and Dorothy. Two others, Judith and Beryl, were to come later.

With the post-war coal-mine strike making its presence felt by rationing of electricity and gas, the business was in dire straits again. And, in any case, the gas company had discovered he'd been tapping off gas illegally from their supply.

So, Albert took the engine out of the Standard van and fitted it up in the rear of the factory in Spring Street. This motor ran on petrol and drove an air compressor that pumped air through a copper pipe with holes in it that lay coiled on the bottom of a drum of Shellite (lighter fluid).

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This converted the lighter fluid to vapour which was taken off from the top of the drum via a hose, and pushed under pressure through the gas lines to all the burners. So now they had gas of a sort. Highly dangerous, but gas.

Albert then bought an Army surplus electricity generator that produced 240 volts, and ran it off the engine also. They now had power, and the engine drove the air compressor as well. They operated on this make-shift system until the coal strike was over.

As a young boy, I would spend many hours in the Spring Street factory, watching the men and women blowing and shaping glass. On special occasions, Albert made me hollow glass animals, and I would stand enthralled watching.

Being told not to touch is hard to obey, and, after seeing an elephant being put down on the bench in front of me - Ah! Such temptation! - I reached out and picked it up, burnt my fingers and dropped and broke the elephant.

When we visited Manning Street, where Dorothy still lived, I used to explore under the house amongst all the left-over neon signs and old black boxes that carried the signs, the old Coca Cola and Shell signs.

In 1952, with the business still growing, it moved to Cascade Street in Paddington, where Albert rented half the lower floor from a Dutchman who did leather work. He lived up the stairs on the top floor.

One morning, on arriving at work, Albert found the fellow had died during the night. With this surprise came more surprises. The Dutchman's wife arrived and claimed everything and told them he had only rented the building from other people.

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These owners arrived and agreed to rent the whole building to "The Minson Family Business". One day, in 1955, they found out the premises were up for sale, and, after a talk amongst the family members, the building was purchased for 1500 pounds, or 3000 dollars in today's decimal currency. Last year the place was up for sale for half a million dollars, and is now called "The Glass-House Gallery".

In the years before I left school, I would work prior to Christmas in the factory, packing glass or cutting it and helping sort and make medical sundries. There always seemed to be that mad rush before closing for the Christmas break. And all through the year, Albert would bring home work for Joan and us kids to do round the kitchen table, putting rubber teats on eye-droppers, rubber bulbs on breast-relievers, and packing them into cardboard boxes.

After leaving school in 1958, I started working in the family business full time. By now the staff had grown to 18 people, with Albert's younger brother, John, managing the production side, and Albert, the office and technical side.

I began at the bottom, making the tea, sweeping the floor, washing and cutting glass and packing, but all the time watching how things were made. I was 16 at the time and happy to be there, watching and learning.

Learning the basic skill to blow glass takes years of training and, most of all, a lot of work. Repetitious work will give a person the understanding and "feel" for the glass.

In the family business, I received plenty of repetitious work, pulling spindles, basic joins, bends, blowing bulbs, and, in the pipette and burette side, volumetric marking and calibration of the work.

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I stayed back many nights, helping Albert design and build new equipment. This area was very important. With competition from local and importing companies, just to stay competitive required new ideas and better machines to help manufacture them.

In 1961, John, who was the production manager, became ill and unable to continue in glass and, more importantly, the family business.

I, with all my lack of knowledge and skill, was given this job and learnt to live on my wits and be creative in how to do the work and be diplomatic with the staff, most of whom had been there much longer than I.

At a later stage, Judith and Beryl also worked in the factory. But, at this stage, I was on my own.

I tried to do as much glassblowing as possible. I still wanted to be a glassblower. I found running a business with such a large staff made this near impossible.

Probably two-thirds of the staff were women, with the most difficult work being done by the leading glassblower. I started a programme of teaching the best women more difficult work.

In 1965, this led to a major confrontation with the leading glassblower, who was from England and still stuck in the old traditions of the craft.

"Women can't blow glass, they aren't good enough or strong enough", so the argument went. I disagreed, and, being in charge, insisted they should learn. A year later, the head glassblower agreed he was wrong. Change comes hard to us all, especially in the work place.

Glassblower/Minson contd.

In 1968, I realised I was doing very little glassblowing. Just managing to keep up my skills, a jump ahead of the leading glassblower, was hard work.

I decided on a project I had been thinking about for a while. It was making ornamental glassware. Not far away, situated in Paddington, was a film studio specialising in making advertising for theatres and television. I had made the special glass work necessary for these ads and found it interesting and challenging.

Albert had spoken a few times about his efforts to make glass in a small crucible and the problems he had encountered. Together with these ideas, and a chance meeting with an American here in Australia doing lamp work in shopping centres, was enough to make me start developing my skills and interest in a completely different area of glass in my spare time.

The first attempts were crude, to say the least, certainly the results of no training, based only on a remote picture of seeing Albert make elephants and swans all those years ago.

On weekends, I took my work to craft fairs in the local churches and schools, and the demand started growing. I built a furnace to the rear of the factory in Cascade Street. Again, it was very crude, but it worked and made glass. Not good glass but glass. I didn't know what good glass would be or what it would be like to work with at that time.

The first blowing-irons were mild steel, without a proper gathering-end or mouth piece, and my tools were tin snips and bent steel as tweezers. I didn't know about paper to shape glass with. The glass batch was just broken bottles which I washed and smashed and added some soda ash to, to help soften the batch for working.

23/29

Glassblower/Minson contd.

The first week, I slept on the floor near the furnace, afraid it might go out and we would have a fire, or explosion. It didn't go out, but the furnace didn't carry any safety equipment to shut off the gas if the fire failed. And Albert couldn't really see how it would be a problem. With all the heat, he said, how could it go out.

This was all in 1970, a time of learning and experimenting, a constant challenge.

Eventually, as time has shown, this type of work took over, and I began on my own, doing my own work, functional and otherwise, constantly seeking what is ahead. The way has had many bends in it, much excitement, and disappointments too. But all that is another story to be told another day.

In 1979, I had enough money saved and bought a one-way ticket and travelled to Sweden to study glassblowing techniques and hand skills in the Orrefors Glass School. This operated in a section of the glass factory in the Orrefors village.

I arrived in January of that year and spent six months in the school. During semester breaks, I travelled to Denmark and Norway, looking at glass factories and museums, galleries and shops.

Late 1978 I had had an idea of making trinket containers. Because making the lids and colouring the glass was difficult, I'd tried with little success. Now in Sweden, amongst all the glass-working, I wondered how to do small boxes again.

During my Easter break, I went to Copenhagen and visited an exhibition in a gallery. The exhibition featured Finn Lynggaard, a Dane, and Kyohei Fujita, a Japanese, both glassblowers.

24/29

Glassblower/Minson contd.

Fujita's work was glass boxes, colourful objects that fascinated me. I walked away with the thought that someone had done it, made glass boxes. But I put the thought of boxes away, only returning to them briefly over the following seven or eight years.

. 25/29

Glassblower/Minson contd.

THE CANBERRA INSTITUTE OF ART

Mid 1985, I started an Associated Diploma in Glass at the Canberra Institute of Art. In mid 1987, while studying in Canberra, at the college, I again returned to "boxes".

I had been exploring a colouring technique, trailing and casing colour onto tubing. I cut these pieces and shaped them into flat panels, which I call tiles. Suddenly I had something to work with that could be formed into a box shape.

The work I produced, during my final year at the Canberra School of Art, used many traditional glass lamp working techniques and some new ones I've developed.

In my glass boxes, I used the casing and trailing techniques and then sheared the glass into strips. I re-formed these pieces into panels for the sides of the boxes, using the torch, or lamp working burner.

Next they were all annealed. After annealing they were ground for size, and cut on the diamond saw if I was making a finger-joint or dove-tail sided box.

The base and lid were formed at the same time, using the same colouring and casing method. However, next, I cut down one side and opened the piece out flat to have a large flat section. These were ground to suit, with 45 chamfers for the set-in edge of the base.

After all the preparation, the box pieces were preheated and then assembled in the torch and again annealed. Finally the work was rough-ground all over and the lid fitted and final grinding and polishing of the complete piece carried out.

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Glassblower/Minson contd.

GLOSSARY OF GLASS TERMS AND TOOLS USED IN LAMPWORKING

1. File. Second cut or warding, used for cutting solid rod or tubing. 150mm size is ample.
2. Tweezers. Stainless steel, long surgical type are the best, 200-250mm long.
3. Paddle. Flat carbon plate on a steel shaft and wooden handle used to flatten and shape the glass. About 50mm x 100mm x 10mm thick, best.
4. Stone. Made from carborundum, must be fine grade. Small one used for sharpening knives or chisels is best.
5. Spectacles or glasses. Must be didymium lenses. They reduce the sodium flare from the melting glass and protect the eye from strain and eventual damage.
6. Vernier Calipers. For measuring the glass OD when working.
7. Reamer. Made from 13mm rod carbon rod joined by a steel rod to wooden handle. This is used for flanging or flaring the glass tubing.
8. Tungsten Knife. Use of a tile cutter will work well, cutting heavier rod and tubing when the file isn't strong enough.
9. Annealing Oven. Used for annealing and removing stress from the glass. In the case of borosilicate or Pyrex type glass. 550C held for 30 minutes will remove all the stress. Cool slowly.

27/29

Glassblower/Minson contd.

10. Wood Block. Must have a variety of holes in it to allow spindles and rods to stand while cooling.
11. Burner. The type of burner is fairly important. One made for glassblowing is best, as its designed for the work and helps make learning a little easier.
12. Work Bench. Must be of a good height and comfortable, the surface covered with fibro sheeting to reduce fire hazard, and a comfortable chair to suit.
13. Imprint Tweezers. Made from spring steel, with ends made from an old metal file or flat brass plate.'

Glassblower/Minson contd.

LAMPWORKING TERMS AND TECHNIQUES USED IN BLOWING GLASS

Pulling a Spindle. Stretching a length of glass tubing down ready for working with. One end is cut open, ready for blowing, using the small cutting stone.

Flanging. Using the carbon reamer. Heat up one end and flange or flare it open by pressing it whilst rotating it against the reamer.

Joins. As in joining 2 pieces of rod or tubing together.

Trails. Adding or trailing coloured or clear rods on the outside of another piece, generally a spindle.

Overlay. Layering rod, generally clear, over trails on the spindle. This is done to keep the colour out of the direct flame and protect the colours on the glass.

Casing. Placing one piece of glass inside another. Used to build up wall thickness and protect the colours from the direct flame and atmosphere.

Sealing Off. Pulling the end of the spindle off to close the end ready for blowing.

Trimming. Cutting the end off the glass, using special shears. This must be done while hot and the shears should be dipped in water to cool cutting edge after use. Helps protect cutting edge and retain hardness.

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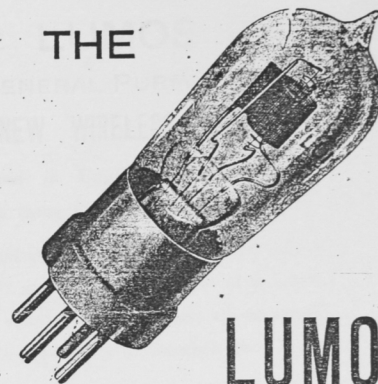
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29/29

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FROM A
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by
PETER MINSON

My thanks go to the following:
My parents, Albert and Joan
Aunty Dot, Beryl and John

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